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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,289	06/22/2001	Keith E. Newman	00533	8022

26285 7590 12/12/2003

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EXAMINER

JENKINS, DANIEL J

ART UNIT PAPER NUMBER

1742

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/887,289

Applicant(s)

NEWMAN ET AL.

Examiner

Daniel J. Jenkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 6-25, 27-35, 37-52 and 54-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luk '630 (Luk).

Luk discloses the method substantially as claimed. Luk discloses a method of forming a powder metal part comprising:

providing a metal powder comprising sponge iron (col. 3, lines 18-23, 52-54);
compacting the metal powder to form a green compact (col. 8, lines 4-9); and
sintering the green compact to form a powder metal part (col. 8, lines 21).

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Luk further discloses wherein the compaction is performed at 5-200 tsi (col. 8, lines 17-18), overlapping and rendering obvious the claimed range of Applicant.

Luk further discloses wherein a lubricant is added to the metal powder (col. 4, lines 59-61).

It is known in the art that sponge iron is a substantially pure iron powder (see Narasimhan et al., col. 3, lines 54-56).

Luk further discloses wherein the amount of lubricant is preferably between 0.2-1% (col. 6, lines 2-6).

Luk further discloses several examples where the green density is 7.12 g/cc or greater and sinter density is 7.13 or greater (see Table 2.1).

It is common knowledge in the art to hot form sintered parts in the same field of endeavor for the purpose of improving the surface toughness of the part when surface toughness is important to the application.

Luk further discloses wherein the metal powder comprises an iron powder selected from a group comprising sponge iron and an alloy powder selected from a prealloyed iron powder. Luk provides no limits to the ratio of the iron powder to the prealloyed iron powder, but only discloses preferred amounts of the alloy additives, for example approximately 6% in the alloy powder disclosed at col. 4, lines 17-24. Selection of such alloy powders results in blends of approximately equal amounts of iron powders and prealloyed powders in order to arrive at approximately 3% additives in the formed article, an amount of alloy component well within ranges known in the art for alloy additives.

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Luk is silent as to the type of die used, but the use of self lubricating dies is well known in the art in order to reduce ejection friction and thus protecting the compressed part from ejection defects.

4. Claims 5, 26, 36 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luk in view of Dunn.

Luk discloses the invention substantially as claimed (see paragraph 3 above).

However, Luk does not disclose the type of sintering to be used, but leaves the choice of sintering method to be determined by one of ordinary skill based on application.

Dunn teaches to use induction sintering in the same field of endeavor for the purpose of minimizing the handling of the formed parts when minimal contamination is required (col. 2, lines 50-53).

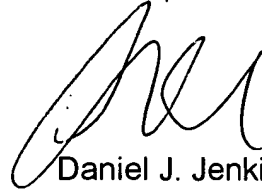
It would have been obvious to one having ordinary skill in the art at the time of the invention to use the induction sintering method of Dunn in the invention of Luk when the application requires a minimum of contamination to the formed articles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Jenkins whose telephone number is 703-306-4157. The examiner can normally be reached on M-TH6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9593.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in black ink, appearing to read 'DJ', is positioned above the printed name of the examiner.

Daniel J. Jenkins
Primary Examiner
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dj
November 30, 2003